

Seminar - Modeling Variability in Stream Habitat

Dan Miller -Earth Systems Institute

Meeting Organizer: Mindi Sheer/NWFS GIS Users Group

Tuesday, November 05, 2002

2:00:00 PM to 3:00:00 PM

Room 370W

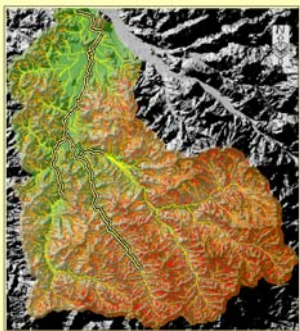
NWFS - Montlake

2725 Montlake Blvd. E.

The NWFS GIS_Users group would like to invite you to a seminar by Dan Miller of Earth Systems Institute on November 5th in room 370W. The title of Dan's talk is "Inferring habitat variability in space and time", and he will be focusing on spatial modeling techniques to estimate reach-scale physical and biological processes important in describing aquatic habitat for salmonids.

Dan is currently working with the PNW USFS Research Lab CLAMS (Coastal Landscape Analysis and Modeling Study) team (<http://www.fsl.orst.edu/clams/>) on modeling geomorphic features in western Oregon streams, and has previously worked with the Willamette-Lower Columbia TRT to refine computer programs for our applications in assessing habitat suitability of watersheds in the WLC ESU.

INFERRING HABITAT VARIABILITY IN SPACE AND TIME



Remote identification of channel characteristics over large areas can provide a powerful tool for assessing the types, abundance, and spatial distribution of channel and riparian habitat potentially found in a river system. Computer-automated characterization of topographic controls on channel behavior, such as drainage area or valley width and gradient, can be made using digital elevation data. The same data can likewise be used to characterize topographic controls on sediment and wood introduction to channels via mass wasting. Overlain with information on stand type and landslide initiation and depositional sites, these data offer a view as to how and why channel conditions, and related habitat,

change over space and time in a river basin. We employ two strategies to infer these changes: empirical correlation and process-based modeling. The use of observed correlations aids in identification of cause and effect and serves both in the construction and testing of models. Use of process-based simulation models allows examination of process interactions over larger areas and time spans than are feasible with field observations. Together, these data and analyses techniques provide a means for quantifying natural variability in channel systems and for identifying anthropogenic effects. I'll show how we've used such data to identify topographic and vegetation controls on debris flow delivery of wood and sediment to channels and how the consequent effects might vary in space and time.

